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Yoga

EXPLORING THE EFFECTIVENESS OF A YOGA MODULE IN MANAGING LOW BACK PAIN: A CLINICAL RESEARCH.

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ABSTRACT **Background:** Low back pain (LBP) has been a global public health concern since 1990. The annual and lifetime prevalence of LBP in India is 51% and 66% respectively. The underlying cause of LBP may be due to errors like maintaining wrong body postures while working, sitting, standing, or sleeping. These errors can be restored or maintained by practicing yoga on daily basis. Therapeutic yoga being a scientific and cost-effective lifestyle modification for LBP, this study was planned to evaluate the add on effectiveness of therapeutic asanas in LBP. **Aims:** To evaluate the add-on effectiveness of a set of therapeutic asanas in low backache. **Methods And Materials:** A total of forty-six subjects (study group n=26, control group n=20) were recruited for this study from IPD and OPD departments of Sri Dharmasthala Manjunatheshwara college of ayurveda and hospital, Hassan. Back pain functional scale (BPFS) was used to assess the extent of pain before and after intervention. **Results**: This study found that subjects who adapted 15 days of yoga package along with their regular therapies for low backache had statistically significant reduction in pain (0.286±0.093) at the end of the study compared to control group (0.178 ±.055), t (41) =5.893, p=<0.05. **Conclusion:** Practicing the prescribed set of therapeutic asanas regularly for 15 days enhanced the flexibility and strengthened the musculature & ligaments leading to the reduction in severity of pain. Hence it can be concluded that Asanas that have backward and lateral bending poses will benefit the correction of spinal curvature, strengthens back muscles and spines which in turn reduce the pain in low back.

KEYWORDS : low back pain, yoga, therapeutic asana, spinal flexibility

INTRODUCTION:

Yoga is considered as a lifestyle which is adapted for its various health benefits. The yoga practices, generally aims to cultivate the body and mind. It is possible to measure the physical and physiological changes that occur through yoga practice. If a proper lifestyle is not followed according to place of inhabitance, body nature, seasons and activities, it is likely to cause diseases[1]. All these diseases can be prevented by the practice of ashtanga yoga. Therapeutic yoga, also called as Yoga therapy is a self-empowering process that addresses the illness in a multi-dimensional manner. Diseases are result of unhealthy diet and regimens adopted by people[2].

Low back pain (LBP) has been a global public health concern since 1990, affecting about 60-80% of individuals. The annual and lifetime prevalence of LBP in India is 51% and 66% respectively[3]. This pain, localized between the lower ribs and buttocks, can manifest in various forms, ranging from acute and short-lived to chronic and debilitating. Despite its prevalence, the underlying cause of LBP often remains elusive. In roughly 90% of cases[4], no specific structural abnormality is identified, leading to a classification of non-specific LBP. It may be due to more physical activity during this age and maintaining wrong body postures while working, sitting, standing, or sleeping. Furthermore, in that tenacity of gaining zero size and six packs people are working out at gym without any learned trainer and there may be intake of fast food or wrong food combination in this busy period of life this issue can multiply. Lack of judiciously selected curative exercises can also be considered as causes of this disease. Highest incidence of low back pain was observed among female gender[5]. Therapeutic options within conventional medical practice are limited to analgesics and physical therapy. In particular, there are few published studies on the effects of yoga on chronic low back pain and effects of yoga practices in non-specific low back pain. In a 2013 meta-analysis of yoga[6] for low back pain, pain-related function and negative mood, yoga was shown to improve pain based on what the reviewers deemed moderate quality evidence from 6 high quality RCTs. Yoga might reduce LBP, but the mechanisms by which this is affected remain hypothetical[7]. Yoga asanas improve the practitioner's steadiness, stamina, flexibility, endurance, anaerobic power and neuromuscular coordination[8]. It also can help redress problems associated with poor body posture and effects of structural decay, because they strengthen weak muscles, stretch tight ones[8], increase in tissue flexibility as well as oxidation combined with a relaxation effect within the lower back and the release of endorphins[9]. Endorphins are the body's natural painkillers[9]. Endorphins are released by the hypothalamus and pituitary gland in response to pain or stress, this group of peptide hormones both relieves pain and creates a general feeling of well-being[7]. Also, it helps in attaining erect and right postures. Being a scientific and cost-effective lifestyle modification, this study was planned to evaluate the add on effectiveness of therapeutic asanas in low back ache.

METHODS:

In this study, 46 subjects diagnosed with low backache from the outpatient and inpatient department of Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan after explaining them about the study and obtaining their written consent were recruited to the study (figure 1). The subjects of age group of 20-50 years were included irrespective of their genders, religion, caste, occupation and socioeconomic status. The diagnosis was done when at least one of the Schober's test, straight leg raising test, femoral nerve stretch test, or sciatic nerve stretch test were positive. Subjects with history of spinal surgeries, known cases of disc slip, osteoporosis, disc desiccation, spondylolisthesis, pregnant women**,** those who cannot follow the command were excluded. The subjects were alternatively allocated into two groups. The control group had 20 subjects were on their prescribed medications. The assessment was done and changes were observed for a period of 15 days. Data was collected before and after the study. Study group contained 26 subjects out of which three subjects dropped out of the study. Added to their prescribed medications, they were made to practice a pre-formed yoga package for a period of 15 days. Data was collected before and after the study. Back pain functional scale (BPFS) was used to assess the extent of pain before and after intervention. The study was approved by the institutional ethical committee and signed informed consent was obtained from all the participants.

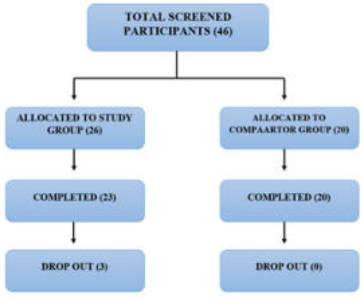

Figure 1

Intervention for study group along with prescribed medications:
Yoga Package:
Loosening exercise – 15minutes

- Head and Neck Exercise - 5 counts
- Shoulder movements - 5 counts

- Elbow, wrist and fingers movements – 5 counts
- Trunk movements – 5counts
- Hip joint movements - 5 counts
- Knee joint movements - 5 counts
- Ankle joint movements- 5 counts
- Toes movements - 5 counts

Standing Postures
- Ardhachakrasana- 3 rounds
- Ardhakatichakrasana- 3rounds

Sitting postures
- Ushtrasana – 3 rounds
- Marjarasana – 3 rounds
- Vakrasana – 3 rounds

Prone postures
- Makarasana – 3 rounds
- Bhujangasana- 3 rounds
- Shalabhasana – 3 rounds
- Vipareeta Naukasana – 3 rounds

Supine postures
- Setubandhasana – 3 rounds
- Markatasana – 3 rounds
- Pavanamuktasana (modified) – 3 rounds
- Shavasana (relaxation)

Statistical method: Data was tabulated and analysed using a statistical software. The independent sample t test was conducted to know the add on effect of yoga practice.

RESULTS:

A total of 46 patients within in the age group 20-50 years were recruited for this study, out of which 43 participants completed the study (study group n=23, control group n=20). Among the participants, 27 were males and 19 were females in the age. The mean of back pain functional scale in study group before the treatment 0.337±0.169 and after the treatment 0.623±0.076 with mean difference was 0.286±0.093, and in control group before the treatment 0.190±0.164 and after the treatment 0.368±0.109 with mean difference was 0.178 ±.055.

Levene's Test for Equality of Variances was applied to assess homogeneity of the groups. This revealed the two groups were not homogenous (P<0.05). The results were given by not assuming the equal variance between the groups. This study found that subjects who adapted 15 days of yoga package along with their regular therapies for low backache had statistically significant reduction in pain (0.286±0.093) at the end of the study compared to control group (0.178 ±.055), t (41) = 5.893, p=<0.0005 [table 1,2]

Table 1- Levene's test for equality of variances for difference in back pain functional scale.

	Levene's Test for Equality of Variances	
	F	Sig.
Difference in BPFS	4.427	0.042

Table 2- Independent Sample t test for difference in back pain functional scale.

Equal variances not assumed		t-test for Equality of Means													
		t		Df		Sig. (2-tailed)		Mean Difference		Std. Error Difference		95% Confidence Interval of the Difference			
		BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	Lower		Upper	
												BT	AT	BT	AT
	Study Group	3.562	5.893	41	41	**.001**	**<0.0005**	.1469	.2559	.041	.043	.063	.168	.230	.343
	Control group	3.735	6.058	31.45	38.55	**.001**	**<0.0005**	.1469	.2559	.039	.042	.066	.170	.227	.341

DISCUSSION:

The results exhibited a statistically and clinically significant improvement in low back pain among the subjects in study group than in control group [(0.178±0.055), t(41)= 5.893, p,0.0005]. this was the add on effectiveness of yoga module practice on going medication by enhancing the muscle strength and flexibility. In a systematic review of the literature by Posadzki et al[10], seven RCTs were identified that had been conducted on yoga for CLBP, and noted that yoga led to a significant reduction in pain intensity in five of the trials. Tekur et al[11] studied the efficacy of the integrated approach of yoga therapy in patients with chronic low back ache and documented 49% reduction in numerical rating scale scores in the yoga group. A study conducted by Yogith B et al[12] established the role of yoga with improved flexibility within 1 week to 4 months of yogic intervention with no adverse effects. Schmid et al[13] reported significantly increased lower body flexibility (measured by chair sit and reach test) after a 12-week yoga exercise program. Studies have shown that exercises are helpful in chronic low back pain to return to normal daily activities and work in adults[14]. Another explanation of yoga's efficacy in pain reduction may lie in endorphin production at a cortical level, which is known to result from alternate stretch and relax procedures of yogasana practice[14].

The present study has shown a better improvement in reduction of pain in study group when compared to control group. Practising the prescribed set of asanas on long term basis may help in improving the spine flexibility and strength.

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